



ANALYSIS OF THE EXPANSION POTENTIAL OF CHICKEN MEAT PRODUCTION IN THE SURKHANDARYA REGION, UZBEKISTAN

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ABSTRACT

The study conducted a comprehensive analysis of the production costs of broiler chicken meat and the live performance metrics of broiler flocks across a sample of 100 poultry enterprises located in the Surkhandarya region during the period of September to October 2025. The study estimated the average cost of production per kilogram live weight of broiler to be 35,690 UZS. The analysis revealed that feed costs and chick procurement costs constituted the most significant components of the total production cost per kilogram of live broiler weight, accounting for 69.2% and 19.6%, respectively. The results indicated that the cost of producing one kilogram of live broiler weight in the Surkhandarya region is approximately 11% to 13% higher compared to other regions of Uzbekistan.

KEYWORDS: *Broiler Meat Production, Poultry Farming, Poultry Enterprises, Food Security, Production Cost Analysis, Economic Performance*

I. INTRODUCTION

Uzbekistan's population is growing and its purchasing power of it is increasing as well as its consumption of animal products. Poultry production improvement is done mainly in the private sector as a device for an additional source of income and employment opportunities, particularly in rural areas. GDP estimates released by the state committee of Uzbekistan in 2010 indicate that the Uzbekistan economy has undergone a significant structural change. The agricultural sector, which has long dominated economic activity has given way to the services sector. However, the role of the various sub-sectors of agriculture in the Uzbekistan economy is still significant. Poultry contributes 5% of the total domestic meat production and the livestock sector plays an important role in the economy of Uzbekistan, accounting for more than 31.0% of gross agricultural production in the country. In Uzbekistan domestic chicken meat production is low, and the domestic egg production level is high.

In recent years, there has been a growing demand for alternative activities in the sustainable development of the agricultural sector, especially in rural areas in parallel with agricultural activities and the result of reforms aimed at generating additional income from this demand is one of the alternative activities for rural population and offers development opportunities.

However, domestic poultry production is only able to meet 56 percent of the demand for chicken meat. This chicken meat decline in the local poultry industry is due to the high cost of production.

The Surkhandarya region, located in the extreme south-east of the Uzbekistan produces 8% of Uzbekistan's agricultural output (Statistical department of Surkhandarya, 2025).

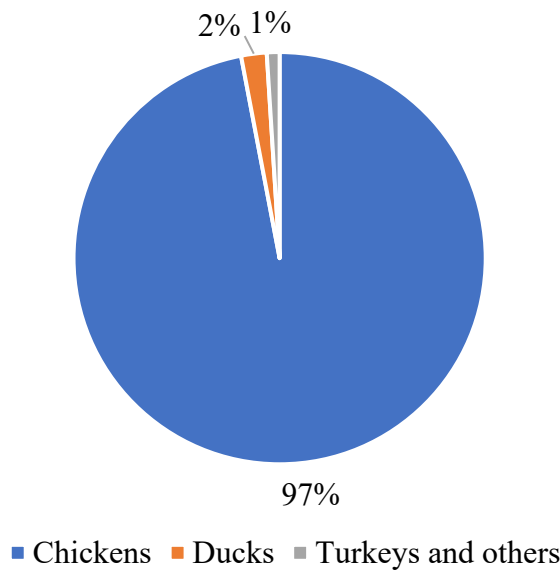


Figure 1. Poultry populations by types %

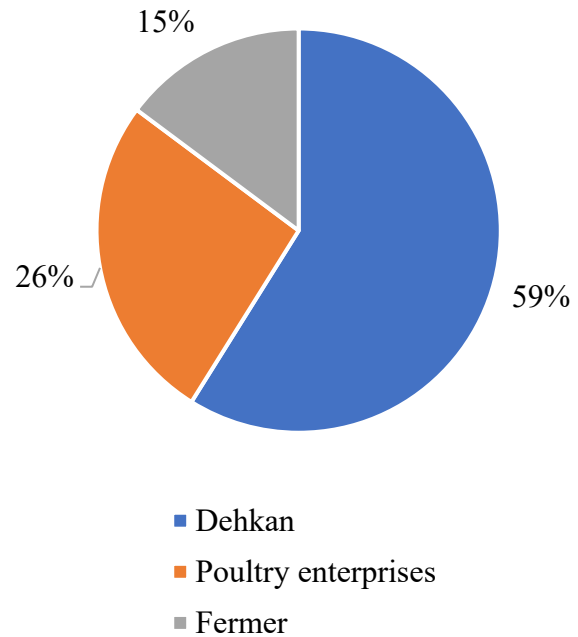


Figure 2. The share of poultry by farms

The Uzbekistan poultry sector primarily produces local and exotic breeds of chicken (97 percent) although a few other species like turkey, guinea fowl, duck, and quail are in the total poultry sector (Figure 1). Chicken meat and eggs are the cheapest source of animal protein in Uzbekistan, and it is well accepted by all economic, demographic, and social groups. Almost all rural households raise local chicken breeds as a source of meat and eggs. Poultry meat and eggs available in Uzbekistan are mostly originated from local dehkan, farmers, and small and large-scale poultry enterprises (Figure 2).

Before industrialization, backyard poultry was the sole source of local, low-productive, and non-descript chickens in Uzbekistan and it primarily met the demand of the producer’s family consumption. Over the course of time, industrial poultry has occupied major shares in the total supply of poultry meat and eggs as the industry adopts modern breeds, sophisticated housing and equipment, and efficient marketing systems. Government efforts, the involvement of poultry enterprises, and changes in the socioeconomic status of the country over the most recent two decades have favored shifts in the Uzbekistan poultry sector.

This study was conducted in the Surkhandarya region, which was selected considering a few causes. In recent years, despite the nutritive value of poultry meat and growth in this industry, its production in the region is grossly inadequate as reflected in the wide gap between demand and supply of the product. Surkhandarya region is still one of the low chicken meat and egg-producing regions in Uzbekistan. The region produces only 6.2 percent of the total national egg production and 4.8 percent of the total national chicken meat production.

1. Angor
2. Bandixon
3. Boysun
4. Denov
5. Jarkurgan
6. Kizirik
7. Kumkurgan
8. Muzrabot
9. Oltinsoy
10. Sariosiyo
11. Sherobod
12. Shurchi
13. Termez
14. Uzun
15. Termez city

Uzbekistan



Figure 3. The map of the Surkhandarya region, Uzbekistan

The poultry production capacity of farms must increase rapidly to be able to meet up with the increasing demand, and for this to be achieved, the present level of technical and economic efficiency must be improved. From this region, the study utilized data that was collected from 15 Districts of the Surkhandarya region (Figure 3). These districts were selected due to the presence of poultry enterprises. Presently, there is a dearth of studies on the efficiency of poultry enterprises and different economic aspects of poultry enterprises in this area of the region. Particularly, there is limited information about the performance of poultry enterprises in terms of technical and economic efficiencies.

Poultry enterprises attribute the high cost associated with poultry and for that matter chicken meat production to the cost of feeding the birds, and the cost of other inputs ignoring the crucial role that cost management can play. Efficient cost management or otherwise by the poultry enterprises has a direct bearing on their cost of production. If poultry enterprises were efficient in the allocation of inputs, this would minimize the wastage of production resources resulting in the minimization of cost and maximization of profit and, hence encouraging them to produce more. This presupposes that low-cost efficiency (high-cost inefficiency) could be a contributory factor to the high chicken meat production cost and for that matter low chicken meat production in Uzbekistan.

Despite the region of the essential components to increase and improve production, the poultry sector has some problems such as the high costs of chicken meat production. In the Surkhandarya, the price of 1 kg of chicken meat in the domestic market is 11-13% more expensive compared with the average price in Uzbekistan (Statistics Agency of Uzbekistan, 2025) (Figure 4).

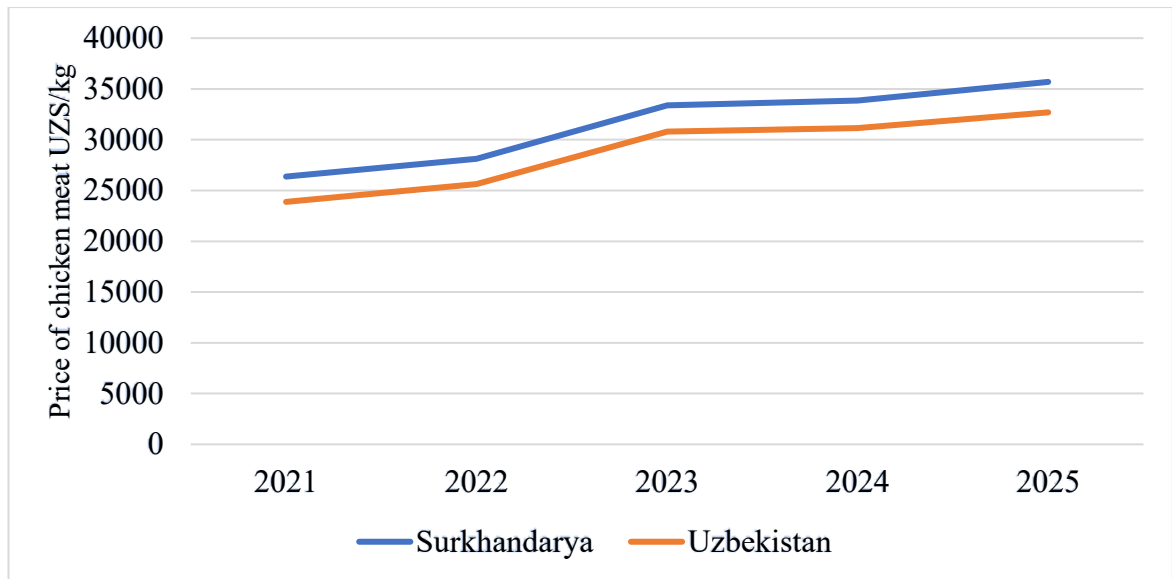


Figure 4. Average price of chicken meat in the domestic market

Observing the situation of high prices and demand in the market, the number of poultry enterprises isn't increasing as rapidly as it was expected because of many reasons. No exact research has been conducted on poultry problems in the region area so far. Therefore, I researched the causes of the high cost of chicken meat production and the problems of poultry enterprises in Surkhandarya.

II. REVIEW OF LITERATURE

Bhuiyan et al. (2003) examined the relative profitability of small-scale broiler and layer poultry enterprises located in Sadar Upazila in the Mymensingh district. In total 60 enterprises, of which 30 were broiler and 30 were layer poultry enterprises were selected purposively. A simple cost and return analysis together with the Cobb-Douglas production function model were employed to achieve the main objectives of the study.

The study revealed that the yearly net return per broiler poultry farm was Tk 56,290.0 and Tk 90,608.0 for layer poultry enterprises. Layer poultry enterprises were found to be more profitable than broiler poultry enterprises. It is evident from the study that the selected variables have exhibited some significant impacts on the production processes of broiler as well as layer poultry enterprises. The study has also detected some major problems of owners of small-scale poultry farms like capital constraints, high prices of inputs, frequent occurrences of diseases, inadequate veterinary services, non-availability of a sufficient number of chicks, and unstable output prices. If these problems could immediately be solved, the income of both categories of farmers would have increased substantially.

Jebarani et al. (2006) studied to estimate the profit-maximizing level of broiler farming in the Kanchipuram and Thiruvallur districts of Tamil Nadu using a nonlinear function. A total sample of 30 broiler farms was included for primary data collection. The sample farms were post-stratified into large (>8000 broilers), medium (>4000 and <=8000 broilers) and small (<=4000 broilers). The cost of production per broiler was calculated. To determine the optimum size of different categories of farms to receive maximum profit, a nonlinear function that related the profit per farm as the dependent variable and size of the farm as the independent variable, was estimated at 50, 38.5 and 11.55% of the farms were categorized as small, medium and large, respectively.

The total cost of production per bird was maximum in small farms (Rs. 25.24) and minimum in large farms (Rs. 22.71). Variable costs accounted for more than 91% of all the farm categories. The optimum size of the small, medium, and large broiler farms should be 2539, 6575, and 15350, respectively. Small farms maximized their net return despite the higher cost of broiler production compared to medium and large farms.

Farooq et al. (2013) studied four districts of Khyber Pakhtunkhwa namely Peshawar, Charsadda, Swabi, and Nowshera during November/December 2009. Forty-one poultry farmers were interviewed out of 41 sample farms, 27 were small and 7 each were medium and large respectively. Farm size was randomly classified based on the number of poultry birds per flock. Farms having up to 3000 birds were considered as small, 3001 to 5000 as medium, and 5001 and above as large ones. The study mainly focused on estimating returns to scale in broiler farming and to make policy recommendations.



The empirical results indicate that on average poultry farmers raised 4.97 flocks per year. The duration between the two batches was found 21 days. The average sell price of broiler was noted at Rs. 99/kg and the farmers marketed 4547 kgs live broilers. The mortality rate in the present study was recorded as 8.30% birds per farm. The broiler cost was calculated at Rs.88.47/kg and gross income from raising the broiler was estimated at Rs.100.04/kg. After subtracting costs incurred on various inputs, the net revenue comes to Rs. 11.57/kg.

The Cobb-Douglas production function results revealed a constant return to scale. The major problems of the broiler farms, as perceived by the farmers were high prices of inputs and chicks, high mortality rate, low prices of birds, and adulteration in inputs. The farmers suggested that livestock extension/research institutions provide training to farmers regarding improved management techniques; the government should fix the price of broiler meat per kg and reduce the price of inputs.

The issue of improving efficiency in the poultry sector, particularly increasing the production of poultry meat, has been widely examined by foreign scholars. For instance, S. Marmelstein applied the Data Envelopment Analysis (DEA) approach to evaluate the performance of poultry enterprises. His study demonstrated that efficient utilization of production resources can significantly contribute to sustainable growth and improved economic performance in poultry farming systems. Through statistical assessment techniques, the research also identified practical approaches for optimizing production structures and establishing cost-efficient poultry production models.

In addition, I.Khayrullina investigated the trends and future prospects of poultry meat exports. The study examined both global and national market conditions and identified key internal and external determinants influencing the export potential of the poultry industry. Based on this analysis, the author outlined strategic directions that could enhance the competitiveness of poultry products in international markets.

A.Osman focused on issues related to stabilizing poultry meat production and strengthening the economic resilience of the sector. The research explored the relationship between global production dynamics and climate-related stress factors. In particular, the author emphasized the impact of heat stress on productivity, feed efficiency, and economic losses, highlighting the need to develop adaptive management strategies aimed at mitigating these risks in poultry production systems.

Furthermore, K. Yue analyzed factors influencing poultry meat quality and identified key determinants for improving product standards. The study emphasized that enhancing meat quality not only increases consumer satisfaction but also strengthens market competitiveness and price efficiency. By improving production technologies and quality management practices, poultry producers can better meet market demand and ensure higher value creation within the sector.

III. SPECIFIC OBJECTIVES

The following are the specific objectives of the study:

- (i) finding out the factors/reasons for high cost of chicken meat production in Surkhandarya.
- (ii) determining which the most important economic and productivity factors affect chicken meat and egg production by poultry enterprises in Surkhandarya.

IV. METHODOLOGY

In Surkhandarya, the progress of poultry development is facing several problems. This study employed a mixed approach based on quantitative and qualitative primary and secondary data. Primary data were gathered from 100 private poultry enterprises located in 15 different districts of the Surkhandarya region by the questionnaire. Data collected were analyzed with the use of the Cobb-Douglas production model, cost analysis of broiler production, and mathematical techniques and economic concepts. Secondary data were collected from the Statistics Agency of Uzbekistan, the Ministry of Agriculture of Uzbekistan, and other reliable open sources.

V. RESULTS AND DISCUSSION

In Figure 5, the size of broiler units was discussed in terms of the total number of broiler enterprises and the average number of broilers per enterprise across different enterprise-size groups. This information provides insights into the scale of broiler farming operations.

The figure indicated that there are different categories or groups of broiler enterprises based on their size. These groups can be classified as small enterprises, which typically have fewer resources and a smaller production capacity, and large enterprises, which were characterized by greater resources and a higher production capacity.



The average number of broilers per enterprise varies depending on the enterprise-size group. For small enterprises, the average number of broilers was calculated to be below 5000 birds. This suggests that smaller broiler units tend to have a relatively lower number of birds, likely due to limited resources and production capabilities.

Medium enterprises, on the other hand, fall within the range of 5000 to 9999 birds. This indicates that broiler production units classified as medium scale generally raise a moderate number of broilers, typically ranging from 5000 to 9999 birds on average.

On the other hand, large enterprises have an average number of broilers equal to or exceeding 100,000 birds. This indicates that these larger-scale broiler operations have the capacity and resources to accommodate a significantly higher number of birds.

The information presented in Figure 5 provides an overview of the broiler industry's landscape in terms of enterprise sizes and the corresponding average number of broilers per enterprise. This data can be valuable for understanding the distribution and scale of broiler farming operations within the industry.

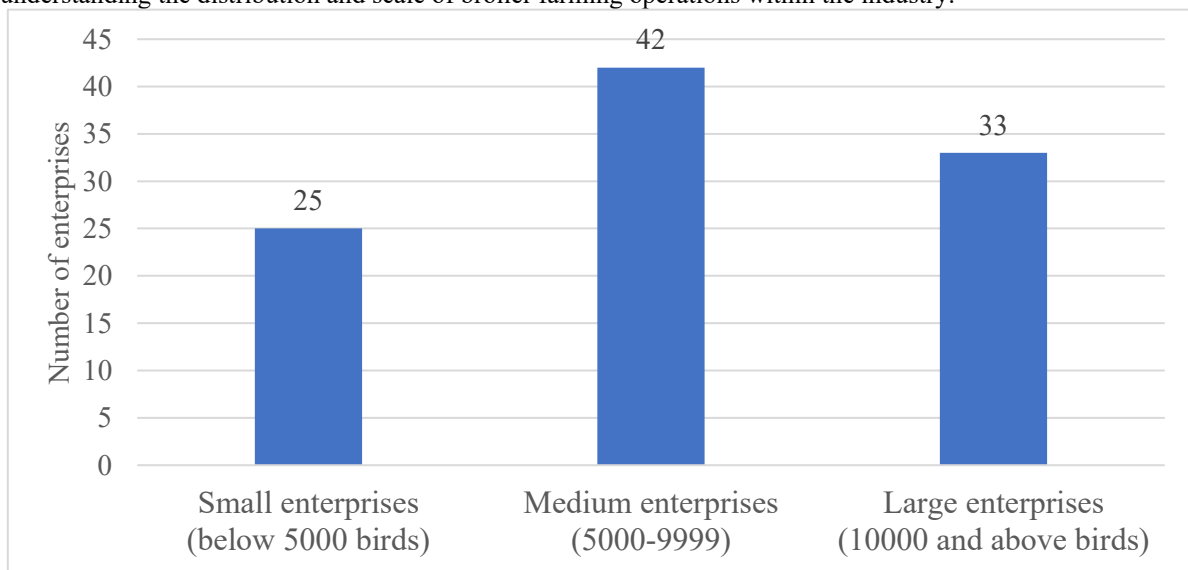


Figure 5. Average number of broilers under different enterprise-size group in Surkhandarya region

The given statement refers to Table 1 which presents data on the feed conversion ratio (FCR) in different farming enterprises. The FCR is a measure of how efficiently an animal converts feed into body weight gain. A lower FCR indicates better feed efficiency.

According to the table, the overall FCR is 1.98, meaning that it takes approximately 1.98 kilograms of feed to produce one kilogram of body weight across all enterprises. However, when we analyzed the data based on farming size, we observed some variations.

In small enterprises, the FCR is 2.02, indicating that it takes around 2.02 kilograms of feed to produce one kilogram of body weight. In medium-sized enterprises, the FCR is 1.98, meaning it takes approximately 1.98 kilograms of feed for one kilogram of body weight. Lastly, in large enterprises, the FCR is 1.96, suggesting that it takes approximately 1.96 kilograms of feed to produce one kilogram of body weight.

From these findings, we can infer that the feed requirement is higher in small enterprises compared to medium and large enterprises to achieve the same amount of body weight gain. In other words, smaller farms are less efficient in converting feed into body weight, requiring more feed per unit of weight gain. On the other hand, medium and large enterprises have relatively better feed efficiency, as they require slightly less feed to achieve the same weight gain. This information is important for enterprises and researchers in understanding feed efficiency and resource management in different farming enterprises. It suggests that small farms may need to explore strategies to improve their feed efficiency to reduce costs and optimize production.



Table 1. Technical indicator and production performance according to scale of poultry enterprises in Surkhandarya region

Parameters	Enterprise Size Group									Overall
	Small (n: 25)			Medium (n: 42)			Large (n: 33)			
	Max	Min	Average	Max	Min	Average	Max	Min	Average	
LW (kg)	2.04	2.02	2.03	2.02	2.00	2.01	2.02	1.96	1.99	2.01
LA (%)	94.48	94.35	94.41	94.61	94.44	94.53	94.86	94.59	94.73	94.68
SA (days)	42.63	42.35	42.48	42.42	42.16	42.29	42.29	41.9	42.05	42.28
FCR (kg)	2.03	2.01	2.02	2.01	1.95	1.98	1.99	1.94	1.96	1.98

Source: Survey results of this study. LW: live weight; LA: livability; SA: slaughter age; FCR: feed conversion ratio

Alternatively, in other words, small enterprises exhibit reduced feed efficiency when compared to medium and large enterprises, given that a lower feed conversion ratio results in higher feed efficiency.

The livability percentage of enterprises in the study area was 94.41, 94.53, and 95.12 in small, medium, and large enterprises. Irrespective of the farm size, the livability percentage was almost the same in the study area. The average slaughter age was 42.48 days, 42.29 days, and 42.05 days. It indicated that the average slaughter age, irrespective of enterprise size, was more and less the same. The average live weight was 2.03 kg, 2.01 kg, and 1.99 kg in small, medium, and large enterprises. It revealed that live weight slightly decreased as enterprise size increased. The findings revealed that the collective production efficiency of the companies' slaughter age averaged 42.48 days, the survival rate stood at 94.68%, and the average weight of live animals reached 2.01 kg.

Table 2 represents the total cost of broiler production (UZS-Uzbekistan som). The average cost was 35,690 UZS per kilogram live weight of broiler in Surkhandarya and 32,538 UZS in Uzbekistan. The basic cost-driving factor in broiler chicken production is feed and chick. On analyzing the costs, the average feed, chick, and housing cost was 24,697 UZS, 6,995 UZS, and 1,892 UZS in Surkhandarya and 21,801 UZS, 5,857 UZS and 1,790 UZS in Uzbekistan. Consequently, feed, chick, and housing prices were more expensive in Surkhandarya than in the country. The poultry enterprises in Surkhandarya purchase import feed and chick for chicken meat production due to the unavailability of poultry feed and chick factories in the region. Therefore, fundamentally the feed cost and chick cost play a significant role in the total cost of broiler production.

Table 2. Total cost of production per kilogram live weight in Study Area

Average cost	Variable costs							Fixed costs		Total cost
	Feed cost	Chick cost	Vet cost	Power cost	Labor cost	Litter cost	Other cost	Housing cost	Manag cost	
Surkhandarya	24,697	6,995	428	357	398	250	428	1,892	250	35,690
Uzbekistan	21,801	5,857	423	325	390	293	420	1,790	241	32,538

Source: Survey results of this study.

On studying the factor cost on average it can be noted that feed cost constituted the largest share (69.2%) of the overall expenses, with chick cost (19.6%) in Surkhandarya (Figure 6). The high feed and chick prices are influencing the overall cost of chicken meat production in Surkhandarya. In terms of the average cost per kilogram of live weight in Uzbekistan, feed cost (67.0%) and chick cost (18.0%) were identified as the predominant factors (Figure 7). It was revealed that the expenses related to feed and chicks accounted for 88.8 percent of the overall cost of broiler production in Surkhandarya and 85.0 percent of the total cost in Uzbekistan.

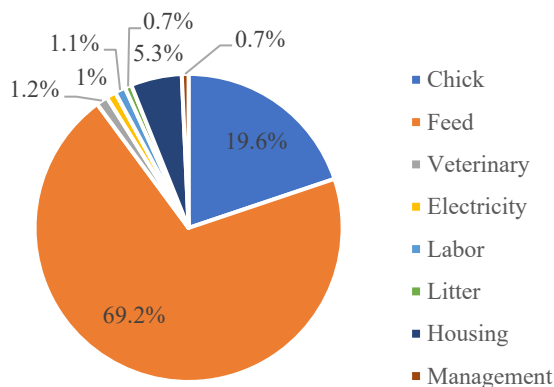


Figure 6. Average cost of production for per kilogram live weight in Surkhandarya (%)

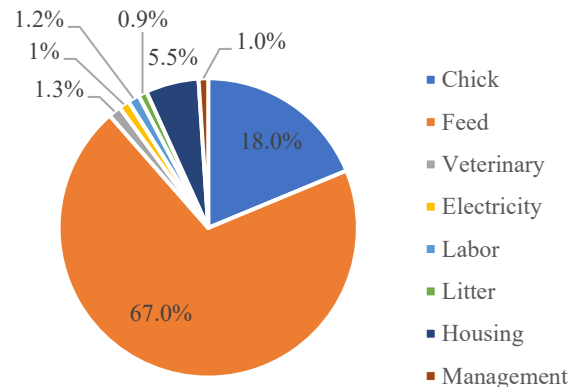


Figure 7. Average cost of production for per kilogram live weight in Uzbekistan (%)

The average cost of production per kilogram live weight of broiler was higher in Surkhandarya when compared to the average cost of production in Uzbekistan, primarily due to the high prices of import poultry feed and chick expenses. It is necessary to establish feed and chick factories in Surkhandarya. Maybe the government support by offering benefits like tax incentives, allotting land for feed crops, and supporting infrastructure development in suitable locations of the region area, as this can effectively decrease the soaring costs of feed and chicks in Surkhandarya.

VI. CONCLUSION

The findings indicate feed and chicks are important and a significant expense in chicken meat production in the study area. Because all domestic producers in the country only supply 46 percent of the total feed demand and 61 percent of the total chick demand in the poultry sector. It has been found that feed cost constituted the largest share (69.2%) of the overall expenses, with chick cost (19.6%) in Surkhandarya. In terms of the average cost per kilogram of live weight in Uzbekistan, feed cost (67.0%) and chick cost (18.0%) were identified as the predominant factors.

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